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Description

External vibrating alarm

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The invention relates to a telecommunication terminal, in particular a mobile telephone, comprising an audible alarm device for the purpose of audible call signaling originating from the telecommunication terminal and an external signaling apparatus connected to the telecommunication terminal by means of cordless communication for the purpose of cordless call signaling, the audible alarm device being able to be turned off by activating the external signaling apparatus.

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In many situations, for example in the presence of a large number of other people, audible call signaling or the ringing of a user's mobile telephone is found to be a nuisance. To prevent the nuisance of the mobile telephone ringing and yet be able to be reached at the same time, there are mobile telephones which can be switched over to vibrating alarm, i.e. instead of the audible call signaling the mobile telephone vibrates and thus signals a call to the called party. However, this only works when the user is carrying the mobile telephone on his body such that it can be felt, or when the mobile telephone is in the user's field of vision. As soon as the mobile telephone is in the user's pocket or coat, for example, he cannot detect the vibrating alarm.

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Another problem of mobile telephones with a vibrating alarm is that the vibration which the vibrating alarm causes represents a loading on the electronic circuits of the

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telephone in addition to the stresses already acting during use.

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EP 0 467 071 A2 discloses a telecommunication terminal of the type referred to in the introduction in which a separate switch can be used to turn off the audible alarm device provided directly on the telecommunication terminal and to
5 activate an external signaling apparatus at the same time. This means that, in particular situations in which audible call signaling is undesirable, for example during a meeting or in a restaurant, audible call signaling can be prevented and, instead, call signaling using the external signaling
10 apparatus can be carried out, for example signaling in the form of a vibrating alarm. However, this telecommunication terminal has the problem that, if the external signaling apparatus fails, for example because the storage battery supplying it has discharged, or because the physical
15 distance between the telecommunication terminal and the external signaling apparatus is too great for the transmission power provided, an incoming call on the user's telecommunication terminal is signaled to the user neither by the external signaling apparatus nor by the audible alarm
20 device provided on the telecommunication terminal. It is therefore not possible to reach the user.

In addition, US 5,636,897 discloses the practice of designing an external signaling apparatus such that it
25 outputs an audible or mechanical signal in the form of a beep or vibration signal if the user with the external signaling apparatus is at a greater distance from the telecommunication terminal than can be bridged by the transmission power provided for communication between
30 external signaling apparatus and telecommunication terminal. With this prior art, the disadvantage arises that, whenever

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the user is at such a distance from the telecommunication
terminal,

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the external signaling apparatus outputs a corresponding alarm signal in order to indicate that call signaling is no longer guaranteed. The user may find this to be a nuisance.

- 5 In the face of this, it is an object of the present invention to provide a telecommunication terminal having an external signaling apparatus in which the user of the telecommunication terminal is not unnecessarily disturbed by the external signaling apparatus and which signals an
10 incoming call to the user even if the external signaling apparatus is not operational.

This object is achieved by a telecommunication terminal of the type referred to in the introduction in which the
15 audible alarm device is automatically activated if the external signaling apparatus is not operational or the physical distance between the telecommunication terminal and the external signaling apparatus exceeds a particular value.

The signaling apparatus, which requires just a radio receiver for short distances, a vibrating device and a small power supply unit, can have compact dimensions and low weight, allowing the signaling apparatus to be carried
5 comfortably on the body. The user is therefore always able to detect the vibrating alarm. Another advantage of the invention is that the telecommunication terminal itself is not subjected to any vibration, and the loading on the sensitive mobile telephone electronics is thus reduced. In
10 addition, the user's exposure to radio-frequency radiation is reduced, since only the signaling apparatus and not the terminal itself need be carried on the body. The cordless communication between terminal or mobile telephone and signaling apparatus extends only over distances of a few
15 meters and therefore requires only very low transmission powers, whose radiation burden is harmless.

Advantageous developments of the invention are described in the subclaims.

20 The invention is explained in detail below using a preferred exemplary embodiment with reference to the appended figure 1, which schematically shows an inventive mobile telephone with an external signaling apparatus.

25 The telecommunication terminal or mobile telephone 1 has an input keypad, a display, an antenna 2, audible call signaling etc. In addition, a low-power transmission device is provided for cordless communication with the external
30 silent signaling apparatus 3, which receives signaling

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signals sent by the telephone 1 by means of an antenna 4.
Furthermore,

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the signaling apparatus 3 has a vibrating device for producing vibration or a device for producing a visual or odorous call alarm. Preferably, the

Patent Claims

1. A telecommunication terminal, in particular a mobile telephone (1), comprising an audible alarm device for the purpose of audible call signaling originating from the telecommunication terminal and an external signaling apparatus (3) connected to the telecommunication terminal (1) by means of cordless communication for the purpose of cordless call signaling, the audible alarm device being able to be turned off by activating the external signaling apparatus (3), characterized in that the audible alarm device is automatically activated if the external signaling apparatus (3) is not operational or the physical distance between the telecommunication terminal (1) and the external signaling apparatus (3) exceeds a particular value.
2. The telecommunication terminal as claimed in claim 1, characterized in that, upon receiving a call, the telecommunication terminal (1) sends a signaling signal for activating silent call signaling to the signaling apparatus (3) and, if the call is accepted by a user of the telecommunication terminal (1), sends a signaling end signal for deactivating silent call signaling to the signaling apparatus (3).
3. The telecommunication terminal as claimed in claim 1 or 2,

characterized

in that cordless communication between telecommunication terminal (1) and signaling apparatus (3) takes place by radio or by infrared.

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4. The telecommunication terminal as claimed in one of claims 1 to 3, characterized

in that the signaling apparatus (3) is designed to output a visual, odorous or vibrating alarm.

5 5. The telecommunication terminal as claimed in one of
 claims 1 to 4,
 characterized
 in that the signaling apparatus (3) has a dedicated
 power supply.

10 6. The telecommunication terminal as claimed in one of
 claims 1 to 5,
 characterized
 in that the signaling apparatus (3) is designed to be
 carried on the body of the user.

15 7. The telecommunication terminal as claimed in claim 6,
 characterized
 in that the signaling apparatus (3) is automatically
 activated and an audible alarm device of the telephone
20 is automatically deactivated when the signaling
 apparatus (3) is being carried on the body of the user.